

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
31 July 2003 (31.07.2003)

PCT

(10) International Publication Number
WO 03/063115 A3

(51) International Patent Classification⁷: **G09F 9/37**,
G02B 6/00, G09G 3/34

(74) Agent: **VAN DEN HOOVEN, Jan**; Internationaal Octroibureau B.V., Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL).

(21) International Application Number: PCT/IB03/00067

(22) International Filing Date: 14 January 2003 (14.01.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
02075255.6 22 January 2002 (22.01.2002) EP

(71) Applicant (for all designated States except US): **KONINKLIJKE PHILIPS ELECTRONICS N.V.** [NL/NL]; Groenewoudseweg 1, NL-5621 BA Eindhoven (NL).

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

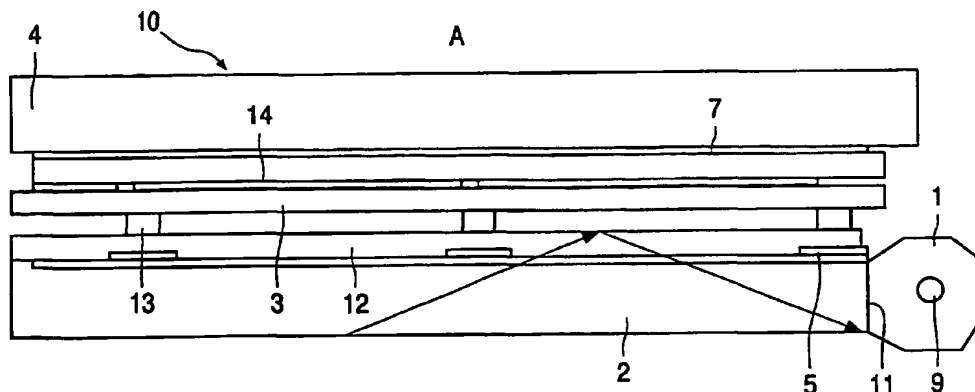
Published:

— with international search report

(88) Date of publication of the international search report:
13 November 2003

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: DISPLAY DEVICE COMPRISING A LIGHT GUIDE



(57) Abstract: The invention relates to a display device (10) comprising a light guide (2) and a plate (4), which extend essentially parallel in a mutually spaced relationship, said display device further comprising a movable element (3) which is arranged between the light guide and the plate in a spaced relationship to the light guide, selection means (5, 6) to locally bring said movable element into contact with the light guide, and a number of spacing elements (13) arranged on the light guide or the plate for maintaining the space between the movable element and the light guide and the plate, respectively, characterized in that the spacing elements form an integral part of the movable element. The invention also relates to a method of producing the display device according to the invention.

WO 03/063115 A3

INTERNATIONAL SEARCH REPORT

Intel Application No
PCT/IB 00067

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 G09F9/37 G02B6/00 G09G3/34

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 G09F G02B G09G

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, PAJ, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	PLISKA P ET AL: "ELECTROSTATICALLY ACTUATED INTEGRATED OPTICAL NANOMECHANICAL DEVICES" INTEGRATED OPTICS AND MICROSTRUCTURES. BOSTON, SEPT. 8 - 9, 1992, PROCEEDINGS OF THE CONFERENCE ON INTEGRATED OPTICS AND MICROSTRUCTURES, BELLINGHAM, SPIE, US, vol. CONF. 1, 8 September 1992 (1992-09-08), pages 259-272, XP000700818 ISBN: 0-8194-0972-3 the whole document --- -/--	1-9, 12

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

* Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- * & * document member of the same patent family

Date of the actual completion of the international search

7 August 2003

Date of mailing of the international search report

14/08/2003

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Pantoja Conde, A

INTERNATIONAL SEARCH REPORT

 Inter — Application No
 PCT/IB 00067

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 98 19201 A (XEOTRON CORP ;ZHOU XIAOCHUAN (US)) 7 May 1998 (1998-05-07) page 9, line 7 - line 27 page 15, line 13 - line 30 page 18, line 3 - line 7 page 20, line 22 -page 21, line 7 page 27, line 25 -page 32, line 5 figures 2,3,6,8,10,12,16-20 ---	1-13
A	US 5 636 072 A (SHIBATA KAZUYOSHI ET AL) 3 June 1997 (1997-06-03) column 1, line 51 - line 56 column 3, line 16 - line 66 column 4, line 40 - line 52 figure 4 ---	1-8
A	EP 0 982 706 A (NGK INSULATORS LTD) 1 March 2000 (2000-03-01) column 30, line 49 -column 33, line 4 figure 15 ---	1-13
A	US 5 771 321 A (STERN ERNEST) 23 June 1998 (1998-06-23) column 10, line 66 -column 11, line 35 figures 4,5 ---	1-13
A	US 4 113 360 A (BAUR GUENTER ET AL) 12 September 1978 (1978-09-12) the whole document ---	1-13
A	WO 99 28890 A (GORKOM GERARDUS VAN ;KONINKL PHILIPS ELECTRONICS NV (NL); PHILIPS) 10 June 1999 (1999-06-10) cited in the application the whole document -----	1-13

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No.

PCT/IB 03/00067

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 9819201	A	07-05-1998	AU 5156198 A	22-05-1998
			WO 9819201 A1	07-05-1998
			US 5953469 A	14-09-1999
US 5636072	A	03-06-1997	US 5774257 A	30-06-1998
			DE 69513427 D1	30-12-1999
			DE 69513427 T2	04-05-2000
			DE 69524266 D1	10-01-2002
			DE 69524266 T2	04-07-2002
			EP 1168283 A1	02-01-2002
			EP 0675477 A1	04-10-1995
			EP 0927984 A1	07-07-1999
			JP 3187669 B2	11-07-2001
			JP 7287176 A	31-10-1995
			JP 2001100123 A	13-04-2001
EP 0982706	A	01-03-2000	JP 2000132142 A	12-05-2000
			EP 0982706 A2	01-03-2000
			US 6483492 B1	19-11-2002
US 5771321	A	23-06-1998	CA 2241823 A1	28-08-1997
			EP 0888573 A2	07-01-1999
			JP 2000505911 T	16-05-2000
			WO 9731288 A2	28-08-1997
US 4113360	A	12-09-1978	NONE	
WO 9928890	A	10-06-1999	EP 0958571 A1	24-11-1999
			WO 9928890 A1	10-06-1999
			JP 2001511265 T	07-08-2001